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ABSTRACT

In designing group day care for infants, special attention has been given to efficient care practices, so that all the children's health needs can be met and so that the staff will have ample time to interact with the children. One efficient method is to assign each staff member the responsibility of a particular area rather than a particular group of children. In the Infant Center several areas are utilized--receiving, feeding, diapering, crib and play. All staff members are to interact with children in a large play area when not needed in their area. The center is one continuous open space separated only by low partitions, an arrangement that allows easy monitoring of all areas. Use of this design has posed some questions. One question was whether children would have trouble sleeping in an open center, since the sleep area would not be darkened or separated from the rest of the center. Studies comparing amounts of sleeping and crying in open, closed and open room conditions have shown that room conditions do not affect infants' sleep. Another question that arose was whether the use of an efficiently planned environment would result in staff spending more time with the children. It was found that as the number of staff in the play area increased, the percentage of time each spent interacting with the children decreased. An experiment has shown, however, that if planned activities are assigned to staff members, interaction is greater and there is less reduction in individual interaction as the number of staff in the area increases. (KM)

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THE ORGANIZATION OF GROUP CARE ENVIRONMENTS: THE INFANT DAY CARE CENTER[1]

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[1]This program has been developed in cooperation with the National Program on Early Childhood Education and the Center for Applied Behavior Analysis

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THE ORGANIZATION OF GROUP CARE ENVIRONMENTS: THE INFANT DAY CARE CENTER

One of the projects of the Living Environments Group[2] has been the application of the Experimental Analysis of Behavior to the design of an environment for group infant day care. A mother can provide close, individual care for her infant. However, care for groups of infants in a day care center presents problems quite different from those of caring for one or a few children at home. In group day care many children's individual needs must be met, each child must be fed and put down for a nap according to his own schedule, babies must be diapered frequently and still staff in a center must have time to play with the children and provide individual contact and interaction. In designing group day care for infants we have given special attention to aspects of efficient care practices, so that all the children's health needs can be met and so that ample time is provided for staff to interact with the children.

This paper will present some examples of efficient design and care practices, and discuss two research questions.

[2]The Living Environments Group, under the direction of Dr. Todd R. Risley, is a group of Kansas researchers concerned with issues of environmental analysis and design.

AREA DESIGN

Our preschool research has shown that an efficient way of caring for groups of children is by assigning each staff member the responsibility of a particular area rather than a particular group of children. So in organizing staff responsibilities in the Infant Center we have assigned people to four areas: the Receiving Area, the Feeding Area, the Diapering Area, and the Play Area (See Figure 1). With this arrangement all staff members are to be interacting with children in a large play area when not needed in their area. The play area is the place where materials can be displayed and activities provided.

Further, the center is one continuous open space. Areas are only separated by low, easy to step-over partitions. This physical design allows for easy transfer of responsibilities. It also permits easy monitoring of all areas. With no walls staff can check on children's safety at a glance from any point in the center.

RECEIVING AREA

When infants are involved, even outwardly simple activities such as the child's arrival in the morning, if not well organized, can take a good deal of both the child's and the staff's time. At the Infant Center, established staff routines and the physical design of the receiving area allows quick, easy transfer of materials and

information. While the staff member and the parent discuss the child's schedule for the day, the parent places the child's food in a tray labeled with his name. In addition, extra clothes, diapers, powders, and ointments are placed in a large bin and clearly labeled with the child's name. Parents also give the staff member special instructions for the day - and the baby.

DIAPERING AREA

Diapering, too, can be time-consuming or efficient, depending on organization. When a child at the Infant Center needs a change, the staff member in charge of the diapering area first sets out the necessary materials needed from the child's diaper bin. When everything is within easy reach the staff member then brings the infant into the diapering area. Because of efficient planning there is time for adult-child social interaction and play. After the child is changed and placed in another area the diapering area is cleaned.

CRIB AREA

A final example is the crib area which is designed for sleeping or playing with crib toys. Cribs are at adult eye level to allow for maximum adult-child eye contact. Sides are of see-through nylon mesh and are collapsible for easy access. Children are removed from the crib area when their nap time is over or when they make a

social response, such as eye contact or vocalization.

STUDY I

Employing these examples in the Infant Center has posed a number of interesting questions.

One question was whether children would have trouble sleeping in an open center due to the fact that the sleep area would not be darkened nor separated from the sights and sounds of the rest of the center. To help answer this question, Sandy Twardosz, a graduate student at Kansas conducted a study comparing sleeping in open versus closed environments. During the open condition, children's cribs were arranged in an area which was similar to the rest of the center in terms of light and noise. In the closed condition, the room was darkened and closed off from the rest of the center.

Figure 2 shows the percentage of sleep that occurred in the sleep area each day of the open and closed conditions.[3] For most days the percentage of sleep was between 40 and 80% during the first open condition, and during the closed condition, and again during the open condition. Thus,

[3]For these and all other data presented, inter-observer reliability ranged from 81 to 95% with a mean of 90%.

room conditions did not appear to affect the amount of time the children slept.

This open versus closed environment study also measured whether one environment was more upsetting than another.. One way a child has of indicating he is upset is by crying. Figure 3 shows the percentage of crying that occurred in the sleep area during the open, closed, and open sequence of conditions. During each condition the percentage of crying was similar, between 0 and 16%. Thus, crying, too, did not appear to vary as a result of room conditions.

These data demonstrate what we have observed at the center: that the children will sleep just about anywhere. Therefore, we feel confident that an open environment design with the advantage of being able to see all children from any point in the center, is also an environment in which infants will be able to sleep.

STUDY II

Another research question which arose from the use of an efficient and planned environment was, does the use of an efficiently planned environment result in staff spending more time with the children? As mentioned before we have considered efficient design, not only to ensure that children's health needs are met, but also to maximize the amount of time the staff have free to interact with children. However, after engineering the environment to

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increase staff efficiency and hence, increase the free time available, we found the staff often used this extra free time to read, rock in the rocking chair, compare recipes and gossip with each other. In short, engineering the environment to free staff to interact with children did not necessarily result in an increase in adult-child interaction. In fact, as efficiency freed more staff members' time to interact with the children, staff members actually spent less time with the children.

Figure 4 shows the percentage of each staff member's time spent interacting with children in the play area when there was one, two, three, four and five staff members in that area free to interact. Interaction included such things as holding the children, presenting toys, playing games with them, and the like. These data represent twenty-six days of observation. This figure indicates that on those occasions when one staff member was in the play area the staff member would spend on the average 72% of her time interacting with the children. When two staff members were present, each would spend 59% of her time interacting with the children. When three were present each would interact 56%; four 43%; and five 40%. As the number of staff in the area increased the percentage of time each spent interacting with the children decreased. That is, as the number of staff in the area increased, on the average each became less efficient. During the

periods of these observations there were no planned activities in the play area. Staff were free to initiate and interact with children in any way they wished.

A study conducted by another Kansas graduate student, Linda Haskins, investigated a staff routine to increase staff-child interaction in the play area. Together with the staff, Linda organized the materials and routines for a variety of activities. Each activity was described on standardized activity forms (see Figure 5). Then activities were scheduled and assigned to a particular staff member. It was that staff member's responsibility to set up, conduct, and then close the activity as planned and described.

Figure 6 shows the percentage of staff interaction during periods of planned activities and no planned activities. During the ten days of the study when both conditions occurred a reversal design was employed in which conditions were alternated twice each day and the order of conditions counter-balanced across days. The data show that during no planned activities staff interaction averaged 45%, 59% and 54%, compared to 82% during planned activities, and with the exception of one day staff interaction was consistently higher during planned activities.

However, remember the original observation--as the number of staff present in the same area increased, adult

interaction with the children decreased. To compare increased interaction during planned activities the data during the ten day period when both conditions occurred is graphed in Figure 7 as the percentage of staff interaction by the number of staff in the area. The data in Figure 7 show the same inverse function as before--as the number of staff increased, the percentage of time that each staff member spent interacting with the children decreased. However, the difference between periods of planned activities and no planned activities is evident. During no planned activities when one staff member was in the play area on the average each would spend 66% of her time interacting with the children; when four staff members were present each would spend only 21% of her time interacting, a 45% difference. However, during planned activities each staff member would spend 92 - 72% of her time interacting with children, only a 20% difference--half that of the no planned activity difference. Thus, during planned activities, the absolute value of interaction was greater and there was less reduction in staff efficiency as the number of staff in the area increased.

Another way to display this result is in full-time equivalents, that is delivery to the children in terms of the number of adults interacting with them. Figure 8 shows the average number of staff interacting across the

number of staff present. These data indicate that during periods when there were no planned activities, there was never more than the equivalent of 1.1 staff members interacting, regardless of whether there was one, two, three or four staff members present in the play area. However, during periods when there were planned activities, as the number of staff in the area increased the number of staff who interacted with the children also increased, from .9 when one staff member was present to 2.9 when four were present.

Clearly then, when free time is made available by efficient planning, the use of planned activities is one method for increasing staff interaction in the play area.

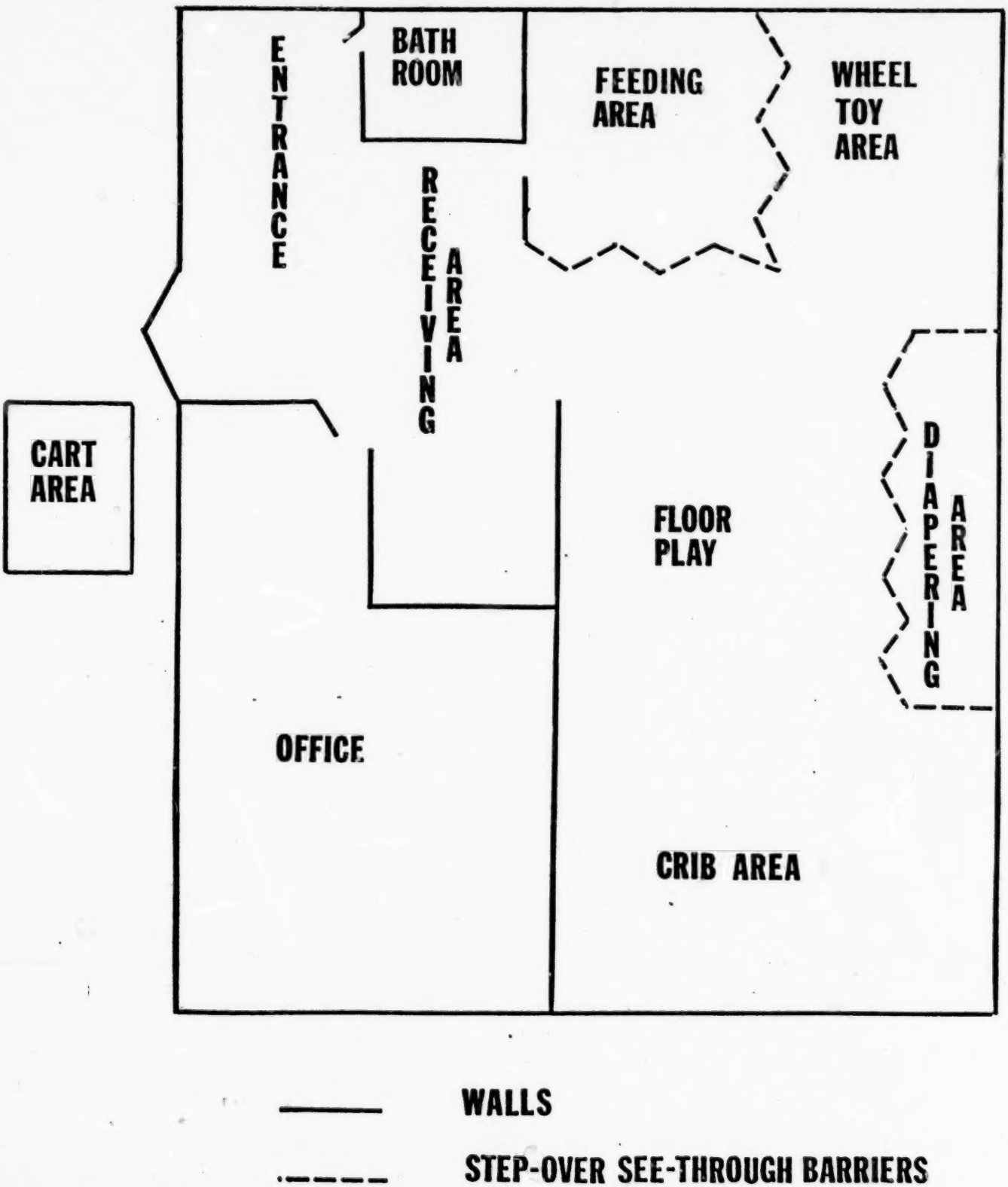

Figure 1. Design of a group Infant Day Care Center showing feeding area, diapering area, receiving area, and play area.

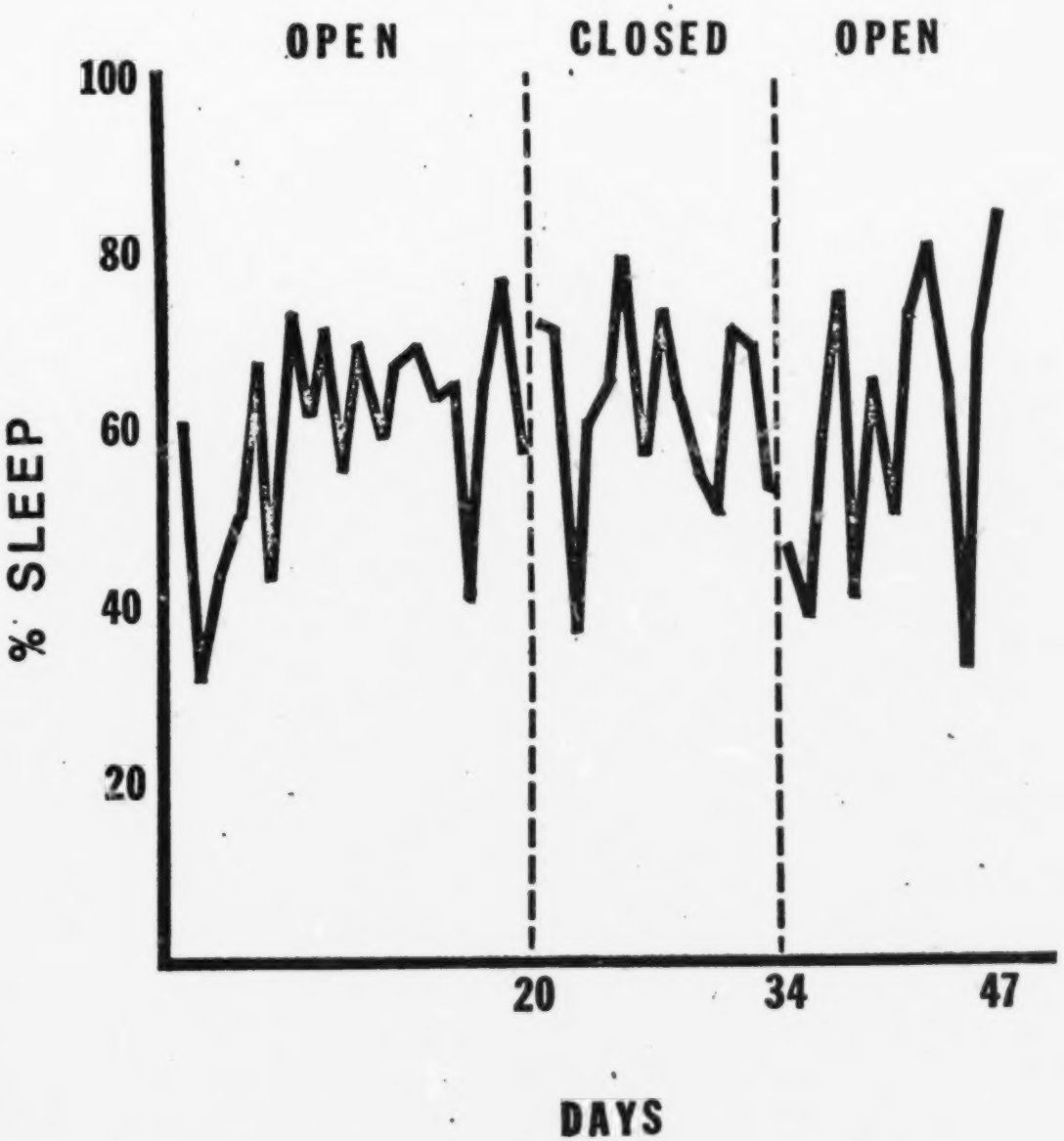

Figure 2. The percentage of sleep occurring in the sleep area each day under open and closed environmental conditions. For most days the percentage of sleep was between 40 and 80% during the first open condition, and during the closed condition, and again during the open condition.

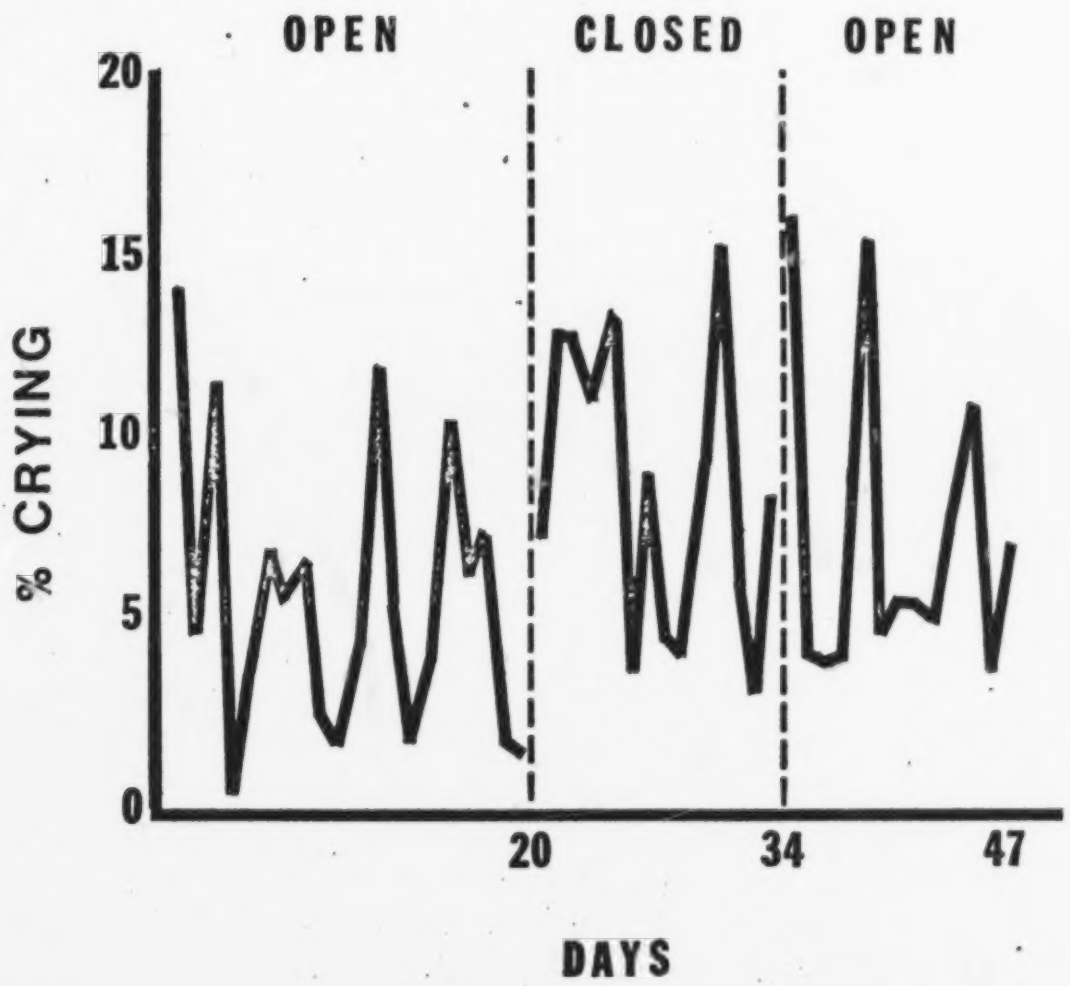

Figure 3. The percentage of crying occurring in the sleep area during the open, closed, open series of conditons. During each condition, the percentage of crying was similar: between 0 and 16%.

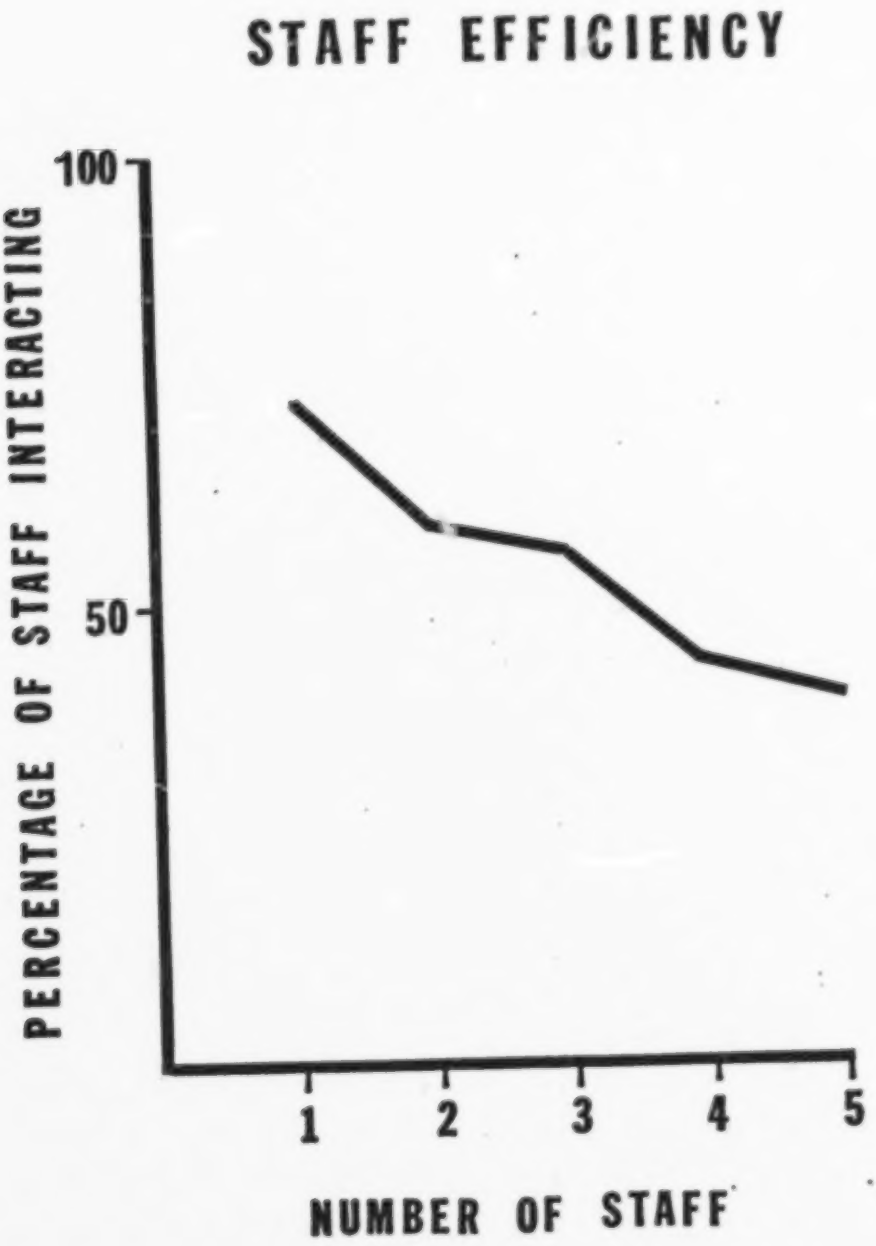

Figure 4. The percentage of each staff member's time spent interacting with children in the play area when there was one, two, three, four, and five staff members in that area free to interact. As the number of staff increased, the percentage of interaction time decreased and each became less efficient.

PLAY AREA ACTIVITY FORM

Submitted by:

Date:

Reason for Submission:

Name of Activity:

Type of Children:

Number of Children:

Number of Staff:

Materials required:

Description of Area:

Opening of Activity:

Conduct of Activity:

Length:

Close of Activity:

Figure 5. Standardized forms for describing staff activities designed for improving routines to increase staff interaction in the play area.

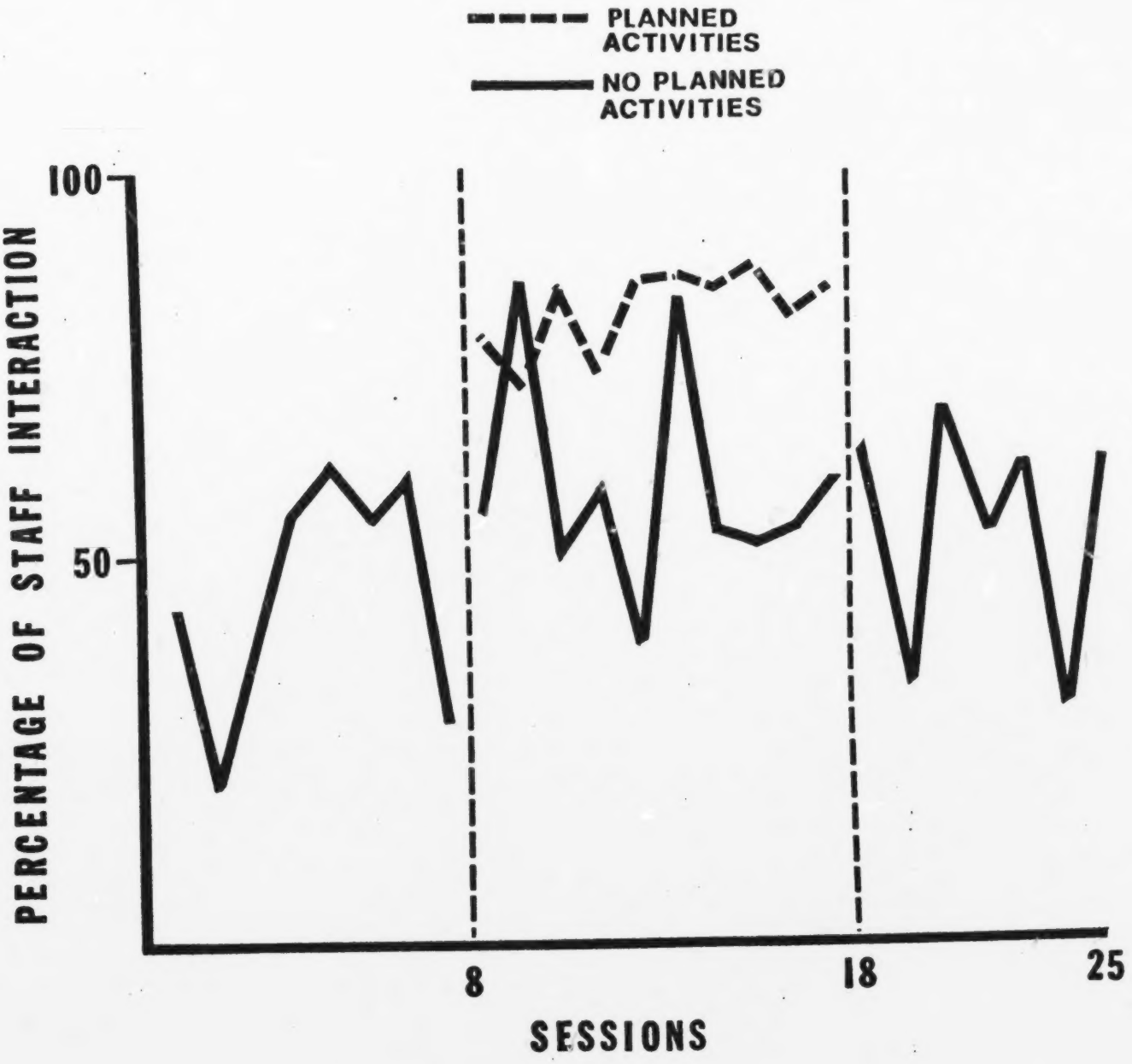

Figure 6. The percentage of staff interaction during periods of no planned activities and during periods of planned activities. During no planned activities, staff interaction averaged 45%, 59%, and 54%, as compared with 82% during planned activities.

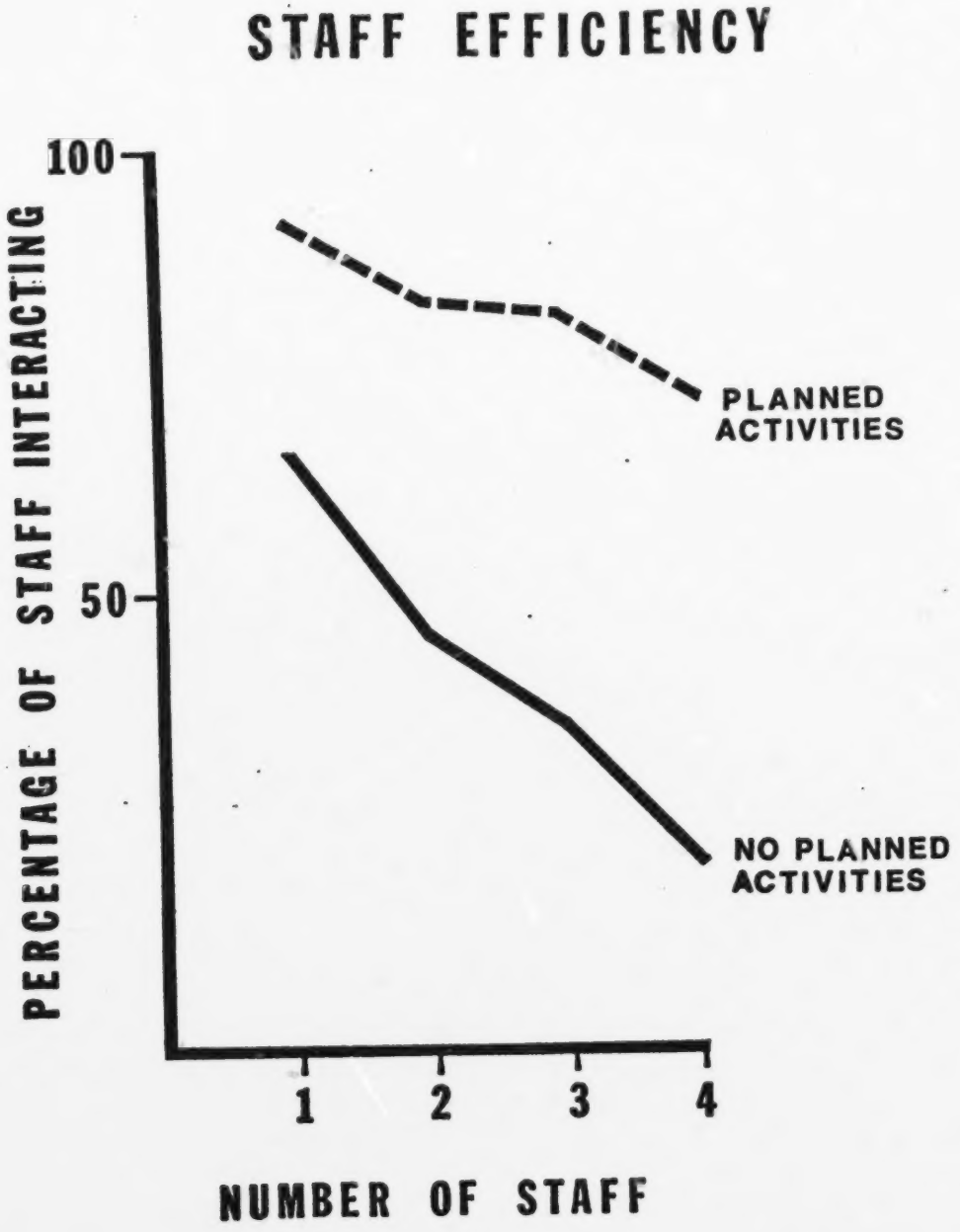

Figure 7. The percentage of staff interaction by the number of staff in the area during periods of planned activities compared with periods of no planned activities. As in Figure 4, the percentage of time that each staff member spent interacting with children decreased as the number of staff increased. During no planned activities, a 45% difference occurred as staff number increased from one to four. During planned activities each staff member spent 92 to 72% of the time interacting with children, only a 20% difference. Thus, during planned activities interaction was greater and efficiency was less reduced as the number of staff increased.

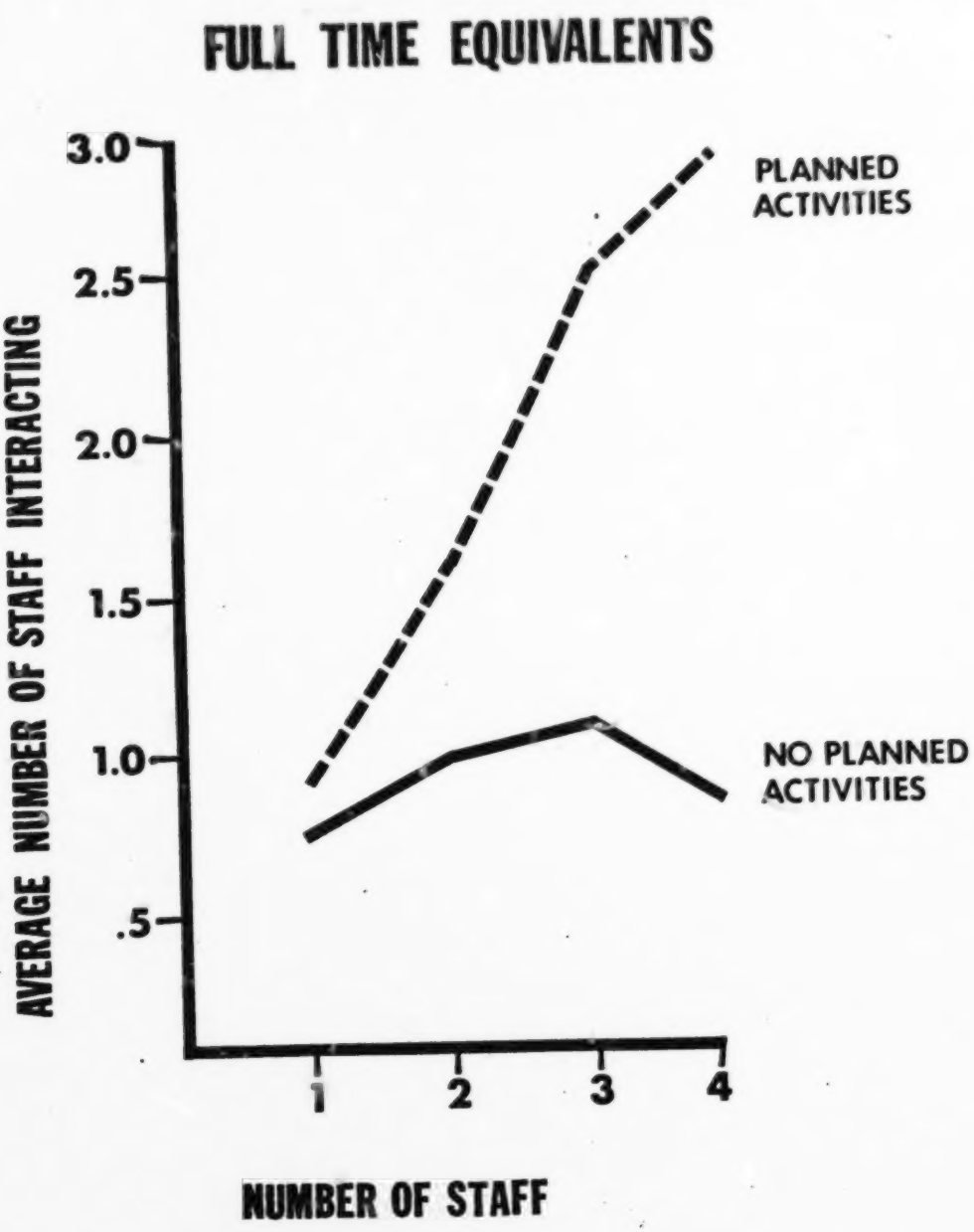

Figure 8. The average number of staff interacting by the number of staff in the area during periods of planned activities compared with periods of no planned activities. During periods of no planned activities there was never more than the average of 1.1 staff members interacting with children. During periods of planned activities the average number of staff interacting was a direct function of the number of staff present, increasing from .9 staff interacting when one was present, to 2.9 when four were present.